

CLAIMS :

1. A sample chamber comprising: a main body; a table disposed in the main body which is provided with a recessed portion for mounting a sample and a groove portion surrounding the recessed portion; a stage which holds the table and is displaceable together with the table; a cover which covers above the main body including the table; and a pipe which communicates with the groove portion and evacuates a gas between a bottom face of said cover and a top face of said table.
2. A sample chamber according to claim 1, further comprising a pressure gauge which permits measurement of pressure in a region surrounded by the cover, the table and a passage of charged particle beams to be irradiated onto the sample.
3. A sample chamber according to claim 2, wherein said cover is provided with an open and close cover which opens and closes the passage of the charged particle beams.
4. A sample chamber according to claim 3, further comprising a means which evacuates a region surrounded by the cover, the table, the passage of the charged

particle beams and the open and close cover, measures pressure therein with the pressure gauge and operates the open and close cover after the measured pressure reaches at a same level as in a passage other than the region of the charged particle beams.

5 5. A sample chamber according to claim 1, wherein said table includes a sample up and down moving mechanism which is used when transporting the sample.

10 6. A sample chamber according to claim 1, wherein the height of the upper face at the outer circumferential side from the groove portion of the table is higher than the upper face thereof at the inner  
15 circumferential side from the groove portion.

7. An evacuation device comprising: a table which is provided with a recessed portion for mounting a sample and a groove portion surrounding the recessed portion;  
20 a stage which holds the table and is displaceable together with the table; a member which covers above the table; and a pipe which communicates with the groove portion and evacuates a gas between a bottom face of said member and a top face of said table.

25 8. An evacuation device according to claim 7, further comprising a pressure gauge which permits measurement



region of the charged particle beams.

13. An evacuation device according to claim 7, wherein said table includes a sample up and down moving  
5 mechanism which is used when transporting the sample.

14. An evacuation device according to claim 7, further comprising an air pad which evacuates gas is provided on the upper face of the table at the outer  
10 circumferential side from the groove portion.

15. An evacuation device according to claim 14, wherein the height of an upper face of said air pad is lower than the upper face of said table between the  
15 groove portion and the air pad.

16. An evacuation device according to claim 14, wherein the height of the upper face of said air pad is higher than the upper face of the table at the  
20 outer circumferential side from the air pad.

17. An evacuation device according to claim 14, wherein a gas lubrication is performed between the upper face of said air pad and the bottom face of said  
25 member and said table is slidably moved by making use of the bottom face of the member as a guide face.

10002144-120504

18. A circuit pattern forming apparatus which comprises a column for irradiating charged particle beams onto a sample and a sample chamber in which the sample is placed and which evacuates gas around the  
5 placed sample to keep vacuum therein and wherein under the condition kept in vacuum the charged particle beams are irradiated onto the upper face of the placed sample to form a circuit pattern on the upper face of the sample characterized, in that the sample chamber  
10 comprises a main body; a table disposed in the main body which is provided with a recessed portion for mounting the sample and a groove portion surrounding the recessed portion; a stage which holds the table and is displaceable together with the table; a cover  
15 which covers above the main body including the table; and a pipe which communicates with the groove portion and evacuates a gas between a bottom face of said cover and a top face of said table including the sample.

20

19. A circuit pattern inspection apparatus which comprises a column for irradiating charged particle beams onto a sample on which a circuit pattern is formed and a sample chamber in which the sample is  
25 placed and which evacuates gas around the placed sample to keep vacuum therein and wherein under the condition kept in vacuum the charged particle beams

5 main body which is provided with a recessed portion  
for mounting the sample and a groove portion  
surrounding the recessed portion; a stage which holds  
the table and is displaceable together with the table;  
a cover which covers above the main body including the  
10 table; and a pipe which communicates with the groove  
portion and evacuates a gas between the bottom face of  
said cover and a top face of said table including the  
sample.

15 20. An evacuation device comprising: a table for  
supporting a sample, said table having a evacuation  
portion; a movable stage for holding said table; and a  
pipe which communicates said evacuation portion, for  
evacuating a gas between a top surface of said table  
20 and a surface facing the top surface of said table.

25

22. An exposure apparatus comprising: a sample chamber according to claim 21; and a system for irradiating

exposure beams onto a sample in said sample chamber.

23. An inspection apparatus comprising: a sample chamber according to claim 21; and a system for  
5 irradiating inspection beams onto a sample in said sample chamber.

24. A sample chamber according to claim 1, wherein said stage is displaceable in front and back, right  
10 and left and up and down.

25. An evacuation device according to claim 7, wherein said stage is displaceable in front and back, right and left and up and down.  
15

26. A circuit pattern forming apparatus according to claim 18, wherein said stage is displaceable in front and back, right and left and up and down.

20 27. A circuit pattern inspection apparatus according to claim 19, wherein said stage is displaceable in front and back, right and left and up and down.